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ABSTRACT

The report deals with junior high curriculum suggestions for teaching physical health. The publication contains three sections: (1) promotion and maintenance of health, (2) measurement and evaluation of health status, and (3) the health of American people. Also discussed is the heart and circulation. Pupil objectives are enumerated and a health overview is included. Extensive related references for both student and teacher are listed. (MC/Author)

ED036832

PROTOTYPE
CURRICULUM MATERIALS
FOR THE ELEMENTARY
AND SECONDARY GRADES

# HEALTH

# STRAND I PHYSICAL HEALTH

## Health Status for Grades 7, 8, and 9

Special edition for
evaluation and discussion

CG005004

THE UNIVERSITY OF THE STATE OF NEW YORK/THE STATE EDUCATION DEPARTMENT
BUREAU OF SECONDARY CURRICULUM DEVELOPMENT/ALBANY, NEW YORK 12224/1969

ED036832

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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# HEALTH CURRICULUM MATERIALS

# FOR GRADES 7, 8, 9

## STRAND I, PHYSICAL HEALTH

## HEALTH STATUS

The University of the State of New York/The State Education Department
Bureau of Secondary Curriculum Development/Albany 12224
1969

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# FOREWORD

This publication contains curriculum suggestions for teaching Strand I - Physical Health Status for grades 7, 8, and 9.

The publication format of four columns is intended to provide teachers with a basic content outline in the first column; a listing of the major understandings and fundamental concepts which children may achieve, in the second column; and information specifically designed for classroom teachers which should provide them with resource materials, teaching aids, and supplementary information, in the third and fourth columns.

The comprehensive nature of the health program makes it imperative that teachers gain familiarity with all of the strands presently in print. In this way, important teaching-learning experiences may be developed by cross referring from one strand to another.

It is recommended that the health coordinator in each school system review these materials carefully and consult with teachers, administrators, and leaders of interested parent groups in order to determine the most appropriate manner in which to utilize this strand as an integral part of a locally adapted, broad and comprehensive program in health education.

The curriculum materials presented here are in tentative form and are subject to modification in content and sequence. Critiques of the format, content, and sequence are welcomed.

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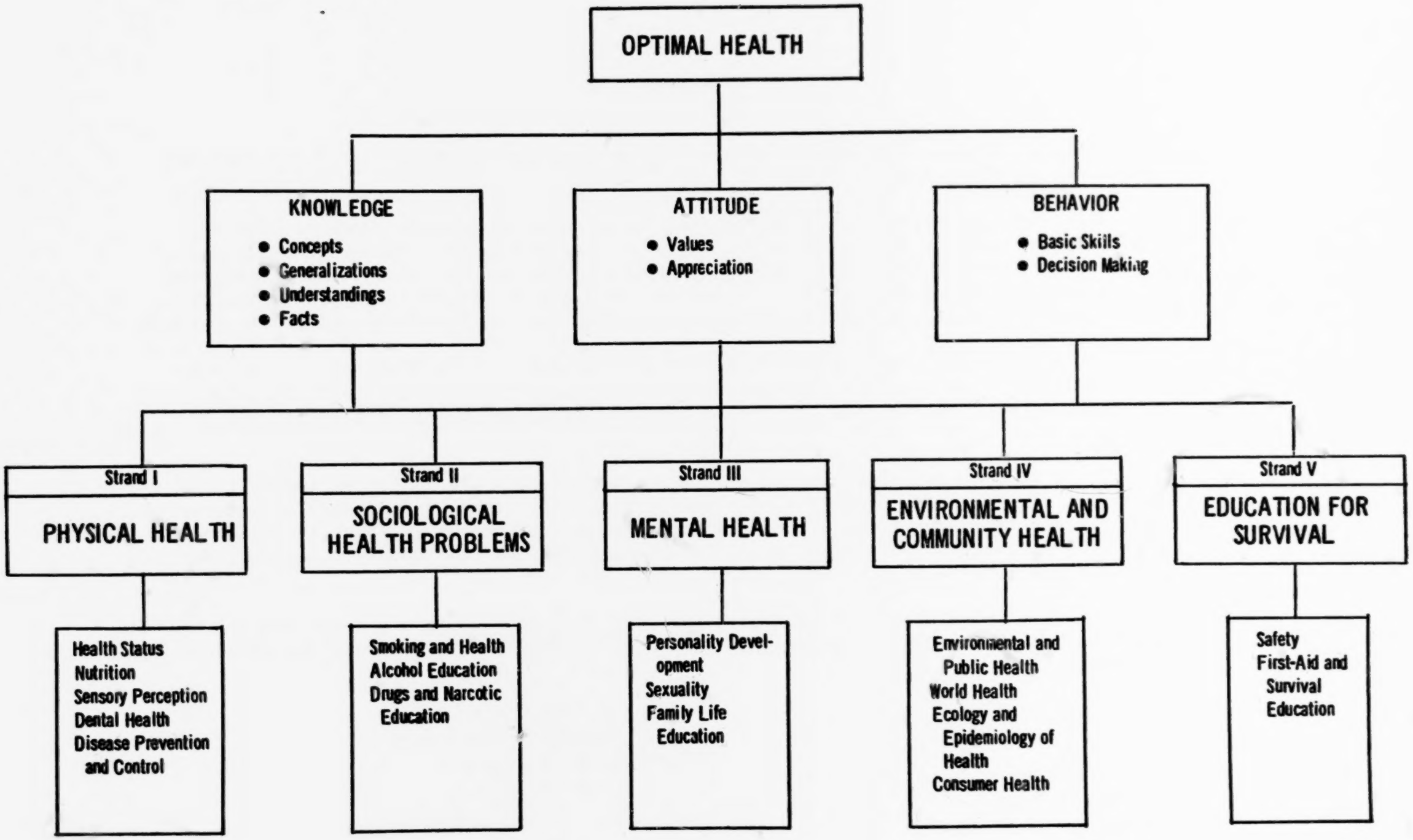
OPTIMAL HEALTH
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• Concepts
• Generalizations
• Understandings
• Facts
ATTITUDE
• Values
• Appreciation
BEHAVIOR
• Basic Skills
• Decision Making
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Health Status
Nutrition
Sensory Perception
Dental Health
Disease Prevention and Control
Strand II
SOCIOLOGICAL HEALTH PROBLEMS
Smoking and Health
Alcohol Education
Drugs and Narcotic Education
Strand III
MENTAL HEALTH
Personality Development
Sexuality
Family Life Education
Strand IV
ENVIRONMENTAL AND COMMUNITY HEALTH
Environmental and Public Health
World Health
Ecology and Epidemiology of Health
Consumer Health
Strand V
EDUCATION FOR SURVIVAL
Safety
First-Aid and Survival Education

## OVERVIEW

Each year we, as a nation, spend approximately two billion dollars on medical and health-related research. As our population approaches the two hundred million figure, more challenging and complex health problems arise to affect our health status, which, in turn, affects our efficiency, effectiveness, and length of life.

Solutions to these health problems revolve around, and, indeed, are dependent upon (1) education of the American people (especially youth), (2) research into priority health areas, (3) determination of and provision for adequate prevention, treatment, and rehabilitation facilities and services, (4) increasing the number of people who are engaged in the health careers and professions, and (5) technological advancement.

## OUTCOMES

Pupil Objectives:

The pupil in grades 7, 8, and 9 should:

1. comprehend the concept of "fitness" and appreciate its implications for his own life and that of others.

2. be aware of the nature and significance of factors which affect one's state of health and fitness.

3. accept increasing responsibility for making health appraisal a continuous process.

4. recognize the importance of the detection, treatment, and correction of remediable defects to optimal personal efficiency.

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| I. The Promotion and Maintenance of Health | Man's mode of living and level of health are directly or indirectly influenced by the dynamic interaction of complex ecological variables. | How do these affect the health status of individuals? of the nation?<br>. urbanization<br>. automation and technology<br>. employee mobility<br>. family size and relationships<br>. educational and occupational opportunities<br>. income and standard of living<br>. changing values | Human ecology, the study of man's interaction with his total environment, concerns itself with health-producing and disease-producing factors. Man's level of well-being results from the interaction of many factors such as:<br>. technology<br>. an adequate standard of living<br>. a safe but challenging environment<br>. public health services<br>. his quality of education<br>. dynamic fitness<br>. psychosomatic balance<br>. good hereditary endowment<br>. a favorable social environment<br>. adequate medical and dental care |
| A. Factors which influence health status | The health status of any group depends to a great extent upon how scientifically, economically, and socially advanced the group is. | | |
| 1. Urbanization | Urbanization has tended to magnify human | What effect does the continuous movement of | There are an increasing number of people moving |

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| | problems associated with civil order, housing, transportation, pollution, drug abuse, waste disposal, human relations, and equality of opportunity. | population into urban areas have on the social problems of housing, crime, disease, pollution, etc.? | into metropolitan areas. It is said that in the year 2000 there will be more than 300 million people in and around cities. This brings on problems of:<br>. overcrowdedness<br>. lack of space<br>. high cost of satisfactory housing<br>. air and water pollution<br>. frustrations of intracity transportation |
| 2. Automation and technology | The combination of improved technology and increased population has produced additional health problems in our physical and sociocultural environment.<br><br>Employment problems have a drastic impact on social structure, purposes, and goals, and consequently on the health status of the people. | Have students write an essay or have a panel discussion or general class discussion on: How their lives are different from that of their grandparents because of automation and technology.<br><br>Assign a committee of students to interview a professional person in one or more of the health careers and determine the kinds of technical advances that have occurred to change significantly the nature of his profession.<br>. What were the advances?<br>. How did they (or do they) affect the | Obviously, not all technological change has had a negative effect on man. Nearly all change has both positive and negative features. |

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| | | profession? | |
| 3. Changing social values | The social well-being of the continuously increasing population can be achieved by educating people to accept the social responsibilities of living closely together. | Develop a chart or table showing:<br>. Health status in the U.S. in 1900<br>. Health status in the U.S. in 1970<br>. Contributing factors to these changes<br>. What these changes mean in terms of the individual's health status, the nation's health status, and the health status of the world.<br><br>For a discussion about values refer to Strand III, Mental Health | A fundamental issue of our time is whether we can develop understanding and wisdom reliable enough to serve as guideposts in working out the problems of human relations. |
| 4. Income and standard of living | A substandard living may have positive bearing on low level health.<br><br>Life in our modern age is far more complex than life was a generation ago.<br><br>Discrimination against some minority groups (in addition to racial minorities) is closely related to their incomes and standards of living, and, therefore, | Discuss the relationship between substandard living conditions and the susceptibility to disease and decreased vitality and motivation.<br><br>A committee may report on the health status of Negro Americans (and other minority groups) and suggest how deprivation, inequality, and prejudice have prevented these Americans | Studies indicate between 2 and 2.5 million Negroes - 16 to 20 per cent of the total Negro population of all central cities - live in squalor and deprivation in inner-city neighborhoods.<br><br>In 1966 about 11.9 per cent of the nation's whites and 40.6 per cent of its non-whites were below the "poverty level" defined by the Social Security Administration (then |

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| | places serious limitations on the general level of health they are able to enjoy. | from enjoying a level of health equal to that of most white citizens.<br>. What are the changes in man's pattern of living in the last quarter century that are influencing his need for planned physical activity?<br>. What is the effect of these changes on the individual?<br>. What has brought about these changes?<br>. What are the indications for the next generation?<br><br>Show and discuss an appropriate film related to public health problems.<br><br>Discuss such questions as:<br>. How do improved living conditions improve man's life?<br>. What effect does poor environment have on the health status of individuals and groups.<br>. How can we identify our health problems?<br>. What kinds of solutions need to be considered? | $3,335 per year for an urban family of four). The level will probably increase as living costs spiral upward. Over 40 per cent of the non-whites below the poverty level live in the central cities.<br><br>Some factors which have caused changes in our pattern of living are:<br>. increased mechanization<br>. a shorter work week<br>. tendency of many people to participate in spectator sports and passive recreation<br>. physical inactivity which is encouraged by use of cars, buses, escalators, elevators, drive-in banks, etc. |

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| B. A concept of fitness | Fitness encompasses the quality of one's physical, emotional, social, and intellectual functioning. | Have students choose a person they admire and list the characteristics this person has that makes him fit for his tasks.<br><br>Use this list as a basic criteria for "fitness comparison" as the class discusses fitness. | |
| 1. Body dynamics | Dynamic fitness is the optimal state of health that can be maintained by each individual. | Some questions for consideration:<br>. What is a perfectly fit person?<br>. Is this desirable in our society?<br>. Does my example (above) fit these standards?<br>. What are his strong health features? Weak health features? | Body dynamics involves the body's ability to meet its immediate needs and develop readiness to meet future needs.<br><br>Dynamic fitness is action capacity. No one part of the body functions separately. Dynamic fitness is more than being physically fit. It embraces intellectual, social, and emotional factors which are mutually interdependent. |
| 2. Interdependence of fitness and body dynamics | Physical activity is an essential component of body dynamics.<br><br>The health of every part of the body is dependent upon the well-being of the entire body.<br><br>Total fitness implies a high level of efficiency and effectiveness of the entire person.<br><br>The human body responds to activity by becoming more efficient in that activity. | List the components of fitness in terms of social-emotional, intellectual, and physical characteristics.<br><br>Have students show, by example, how one may be efficient and fit in one area but not necessarily in another. | The value of physical activity to physical health is that it:<br>. preserves the positive physical characteristics of youth.<br>. helps to prevent |

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| | | Following these discussions have class write their definitions of "health," "fitness," "illness," etc. | . obesity and degenerative disease associated with overweight.<br>. stimulates the general physiology of the circulatory, respiratory, and excretory systems.<br>. maintains one's ability to meet emergencies more effectively.<br><br>Cardiovascular sufficiency is the ability of the heart to meet the demands of the body for a constant supply of blood. C.V. sufficiency is increased through physical activity.<br><br>See Appendix A |
| 3. Adequate nutrition | The nutritional status of an individual has direct bearing on his fitness and sense of well-being. | Have class investigate and discuss each of the following:<br>. Boys are better nourished than girls in this country.<br>. Vitamin D and iron are the nutrients most lacking in diets (between ages 4 and | See Strand I - Nutrition<br><br>Recent studies have shown results of malnutrition during wartime conditions such as:<br>. lack of energy, endurance, and vitality<br>. physical activity curtailed sharply<br>. mental stability |

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| | | 20).<br>. As young people enter their teen years, girls begin to skip breakfast more and so do some boys.<br>. Girls snack more than boys. (Not necessarily detrimental)<br>. Inactivity rather than large food intake appears to be the primary factor in overweight.<br>. Studies show adolescents, more than any other group, are eating diets lower in protein.<br>. Overweight causes added stress on body organs thus increasing the likelihood of malfunction, disease, and lowered resistance. | reduced<br>. misbehavior and restlessness increased sharply<br>. mental achievement was distinctly impaired (reduced memory and listlessness, but basic basic intelligence was not altered).<br><br>Energy foods are primarily carbohydrates, fats, and oils. The energy stored in foods is counted in Calories. |
| 4. Fatigue, rest, and sleep | One's growth and health status depend greatly on adequate rest and sleep.<br><br>When activity is prolonged, waste products accumulate in the blood stream, causing fatigue and a | Have students:<br>. Make a plan for a day that balances activity, rest, sleep.<br>. Discuss the reasons why sleep and rest are needed and essential to continuing good health. | It is impossible to make a general statement to accurately indicate how much sleep any individual should have. This requirement varies from one person to another. |

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| | decreased ability to function efficiently. | | |
| | Rest and sleep are needed to enable the body to repair itself, to remove fatigue products, and to enable muscles to relax and replenish their store of fuel. | Divide class into two groups. Have one group discuss the causes and effects of fatigue. Have the second group discuss the types of fatigue and their dangers. | Fatigue which is relieved by rest or a change of activity is acute fatigue.<br><br>Chronic fatigue may continue day after day. A night's sleep does not relieve it. Emotional conflicts can contribute to chronic fatigue. Danger signs are sleeplessness, poor disposition, a decrease in efficiency; and loss of appetite, weight, and enthusiasm. |
| | The amount of work and play that can be accomplished depends on the state of one's health. | | |
| | Fatigue is the natural result of activity and may be classified as acute or chronic. | | Fatigue results from the accumulated end-products of metabolism in the cells. |
| | Muscular and organic recovery depends on rest, replenished fuel supply, and removal of waste. | | As the body uses up blood sugar, it releases waste such as lactic acid. After a certain amount of lactic acid accumulates, the body works less efficiently.<br><br>Most of this waste is changed back into blood sugar to be used again. This is accomplished |

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| | | | during rest and sleep. |
| 5. Leisure time activities | Recreation refers to any activity that is a change from one's work, or regular routine.<br><br>Recreation is a fundamental human need essential to the well-being and fitness of everyone. | List and discuss the factors in our modern society that indicate a need for recreation.<br><br>Discuss factors affecting wise choices of leisure time activities such as peer group decisions, parental choices, mischief, increasing money needs, desire for status, mobility of youth, decreasing moral restraints.<br><br>Discuss destructive leisure-time activities versus wholesome use of leisure hours. As a mental health problem - what are the causes of delinquency? What are the possible solutions? Is boredom a social disease? Why? | |
| II. Measurement and Evaluation of Health Status | There are many tests available which will provide us with some knowledge of our level of health. | | These may include screening, complete physical examinations, specific laboratory tests, and casual observations. |
| A. Health examination | An annual physical examination provides the doctor with an opportunity to check | Invite a physician to class to discuss why a physical examination includes such things as: | A thorough examination can be accomplished in less than one hour. Properly planned and |

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| | growth and development and to answer questions.<br><br>Each individual should understand that, ultimately, he is responsible for his own health status. | . checks on physical development<br>. examination of heart and lungs<br>. testing of eyes, ears, nose, and throat<br>. blood tests<br>. urinalysis<br>. immunization | thoroughly administered, the health examination may be the best indicator of health status and total fitness. |
| B. Pulse rate tests | The recovery time of an individual's pulse rate (heart beat) is one measure of physical fitness.<br><br>See Section I-B for other criteria of physical fitness. | Discuss how the pulse rate test evaluates cardiovascular function and physiological fitness. | See Appendix A |
| III. The Health of the American People | Health status is greatly influenced by:<br>. the quality, quantity, and availability of health facilities<br>. the health knowledge of people and,<br>. the availability of competent health services | Read and discuss, "The Health of the American People," in the June 1966 issue of the Scientific American to see a unique way of measuring the health of our country's people.<br><br>Questions for discussion:<br>. Is our well-being becoming dependent on community facilities?<br>. How effective are community programs to an individual's | New techniques and technology in the health sciences make it increasingly apparent that the individual is faced with many situations beyond his control. For example, the environmental health problems, such as pollutants and food quality, require group action.<br><br>Traditionally the health of a nation's people has been measured by the |

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| | | level of health? | rate at which they die. A decreasing death rate has been related to increasing health.<br><br>There is renewed interest in the positive elements of good health rather than merely the length of life. |
| A. Factors which influence population | Significant population increases give rise to physical and emotional problems that affect health status. | Review the population trends in 1900 with those of the present. Include:<br>. factors affecting populations<br>. significant increases and decreases and their causes<br>. problems created and the kinds of solutions being considered<br><br>Invite to class a city planner to discuss how new urban or suburban areas are planned. What factors must be considered to protect the health status of the people involved?<br><br>How do these developments affect other, related populations? | Some of these would include:<br>. Physical factors related to maintenance of health, such as:<br>. food supply, demands, and needs<br>. water and sewage facilities<br>. recreational provisions<br>. Psychological factors related to:<br>. overcrowding<br>. family security<br>. personal aspirations<br>. identity |
| 1. Birth rate | The increasing birth rate since World War II has resulted in a higher | Discuss the implications included in:<br>. high birth rates | In 1900, more than one-third of the population was comprised of children |

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| | proportion of children in relation to the total population. This, in turn, has resulted in increased need for health services for ages 0-19.<br><br>Changes in the composition of the population alter the nature and scope of the health problems affecting man. | . low birth rates<br><br>Questions:<br>. Why may a sudden increase in birth rate create public health problems? How may this affect the health status of a given area?<br>. What kinds of problems are most likely to occur as a result of low birth rates? High birth rates?<br>. What is the present birth rate as compared with 20 years ago? 50 years ago?<br>. What are some causes for these changes?<br><br>On the chalkboard, rank the top ten nations with the lowest infant mortality rates. Your pupils may be surprised that the United States does not have the lowest rate. Have the class discuss why this condition exists. | under 15 years of age; in 1940, it dropped to approximately one-fourth; but in 1966, it had grown again to approximately one-third.<br><br>In 1900, 18% of the population was 45 years of age and over; 4% were 65 and over. In 1950, 28% of the population was 45 years of age and over; 8% were 65 and over. In 1966, 29% of the population was 45 years of age and over; approximately 10% were 65 and over.<br><br>In 1966, about 3,629,000 babies were born in the United States and 84,800 died in their first year of life. These figures translate into a rate of 23.4 infant deaths per 1,000 live births, which is an all time low for the nation.<br><br>Of the more definitive causes of infant death, respiratory disorders and congenital malformation were among the chief causes of mortality. Almost half of the infant deaths were attributed to |

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| | | | the generalized or less defined conditions - post-natal asphyxia and atelectasis, immaturity, unqualified and ill-defined diseases. |
| 2. Death rate | The decline in infant mortality has resulted in an increase in average life expectancy and thus, an increase in the chronic and degenerative diseases associated with an "older" population. | Through library research, some students may wish to investigate and report how vital statistics are:<br>. gathered<br>. organized into specific categories<br>. interpreted<br>. used for new programs<br><br>Compare the vital statistics of New York State with those of other selected states. Large differences may be explained quite logically. | Fetal deaths (stillbirths) - those for which the period of gestation is 20 weeks (or 5 months)<br><br>Neonatal mortality rate - deaths of infants under 28 days old, exclusive of fetal deaths<br><br>Infant mortality - deaths of infants under 1 year old, exclusive of fetal deaths |
| B. Present health status of the American people | During a fifty-year period (1900-1949), the incidence of infectious diseases showed a 90 percent decrease.<br><br>The degenerative, chronic, and constitutional diseases have taken a prominent role in affecting the health status of the United States. | Of the ten leading causes of mortality in the United States, how many are caused by communicable diseases and how many are caused by chronic or degenerative diseases? | Factors which have contributed to a decrease in infectious diseases were:<br>. improvement in the standard of living<br>. improved environmental sanitation<br>. expansion and improvement of the immunization program<br>. improved medical care<br>. increase in health care facilities and services |

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| | Advances in medical science have improved the health of all age groups and increased the average life expectancy.<br><br>Some of our current health problems (e.g., air pollution, disposal of radioactive wastes, water contamination) are a result of technological "advances" made by our society.<br><br>Increased recognition of the community's responsibility for the health of its residents has resulted in improved public health programs. | Have students plan, organize, and create an hypothetical society with optimum health status, efficiency, and effectiveness. They might consider and include in their creation:<br>. local populations<br>. health facilities and personnel, as well as ideal locations<br>. emigration - immigration<br>. other factors as discussed during the class experiences<br><br>This may be done before the class experiences this strand. After teaching the area, the class may want to improve or recreate their society. | Death rate from all infectious diseases combined in a 50-year period:<br>1900: 676 per 100,000 population, decrease to<br>1949: 79 per 100,000 population<br><br>Factors contributing to improved maternal and child care:<br>. improved prenatal and postnatal care of mothers<br>. more extensive use of hospitals for deliveries<br>. growth of well-baby and pediatric clinics<br>. increased use of health personnel, e.g., public health nurses<br>. improved standards of living<br>. better housing<br>. improved methods of disseminating information<br><br>See Strand IV, Public and World Health. The teacher may wish to use some of the experiences and content related to community action in improving or maintaining the health of people. |

## Heart and Circulation

The heart is a pump. Its function is to constantly receive venous blood from all the tissues in the body and pump it to the lungs for oxygenation. In turn, when the lungs return the newly oxygenated blood to the heart, it pumps this fortified and oxygenated blood back to all the tissues in the body and this is an ongoing vital cycle from birth to death. In addition, the lung action removes $CO_2$ from (venous) blood and eliminates this waste product through exhalation of air in the breathing process.

Being a muscle, the heart becomes stronger and larger as it is called upon to do more work. A larger heart is able to fill itself with more blood while a stronger heart has the ability to force blood throughout the body with greater ease. A stronger and larger heart does not have to contract as often as a smaller or less efficient heart. Because it expends less energy, a large, strong heart is claimed to be more efficient.

Physical activity will not damage a normal heart. Fatigue in other parts of the body will stop strenuous exercise before there is injury to the heart.

The ability of the heart and lungs to work hard and long during strenuous activity is dependent on the efficiency of the body systems that contribute to the nourishment of the body cells, that is, the respiratory and circulatory systems.

The cells of the body must be supplied with a continuous supply of oxygen and nutrients. When the body is more active, the supply of nutrients and oxygen is increased and the return of blood to the heart is stepped up, at the same time there is a greater exchange of oxygen and carbon dioxide between lungs and the bloodstream.

Cardiovascular test results are useful screening measures of physiological fitness. They are similar to tests of muscular strength and endurance in that they rise with improved individual health status and fall as organic strains and defects appear. All these tests require utmost care in administration in order to secure reliable results.

The Michigan Pulse Rate Test

The test is comprised of:

- counting normal standing pulse
- running in place at the rate of three steps per second for a period of 15 seconds
- counting standing pulse rate beginning ½, 1, 2, and 3 minutes after cessation of exercise; and
- rating according to scale based on recovery time.

| Time To Recover Normal | Grade | Degree of Fitness | Physical Habits or Types |
|---|---|---|---|
| ½ minute | A | Fine | Athletic |
| 1 minute | B | Good | Active |
| 2 minutes | C | Fair | Moderately Active |
| 3 minutes | D | Poor | Sedentary |
| Pulse slower after run | E | Very Poor | Invalid |

Multimedia Resources (7-9)

TEACHER REFERENCES

These supplementary aids have not been evaluated. The list is appended for teacher convenience only and teachers in the field are requested to critically evaluate the materials and to forward their comments to the Curriculum Development Center.

Explanatory Note:

The multimedia materials in this listing include materials from many different curriculum strands. The nature of Health Status and its relationship to all curriculum strands make such a listing both desirable and necessary.

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## AUDIOVISUAL AIDS

To gain further information about these aids, please consult your local A/V director or supervisor or school librarian.

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Exercise and health. 11 minutes, color. Demonstrates how various activities help adolescents overcome particular difficulties. It points out the value of physical health.

The thread of life. Bell System Telephone Co. 60 minutes, sound. The science of genetics, genes. DNA. (advanced)

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You and your health
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American Cancer Society

American Heart Association

American Medical Association - Department of Health Education, 535 North Dearborn Street, Chicago, Illinois

Department of Health, Education, and Welfare - Office of Education Publications, Washington, D.C.

National Dairy Council - Chicago, Illinois

National Recreation Association - 8 West 8th Street, New York, New York

National Tuberculosis and Respiratory Disease Association

New York State Department of Health - Holland Avenue, Albany, New York

New York State Education Department, Bureau of School Health Education - University of the State of New York, Albany, New York

New York State Education Department, Bureau of Physical Education and Recreation - University of the State of New York, Albany, New York

New York State Narcotic Addiction Control Commission, Albany, New York

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World Health Organization - United Nations, New York, New York

* Will send information on current publications upon request.